Exhibit 18

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF OHIO

MICHAEL POFFENBARGER,	)	
	)	
Plaintiff,	)	
	)	
v.	)	No. 3:22-cv-00001
	)	
FRANK KENDALL, *et al.*,	)	
	)	
Defendants.	)	
	)	

DECLARATION OF COLONEL JAMES R. POEL

I, James R. Poel, hereby state and declare as follows:

1. I am a Colonel in the United States Air Force currently assigned as the Chief of Public Health at the Air Force Medical Readiness Agency (AFMRA). I have been in this position since July 31, 2018. As a part of my duties, I am responsible for developing and directing Department of the Air Force (DAF) Public Health and Preventive Medicine policy, directing accessions and assignments for DAF Public Health Officers, and advising the DAF Surgeon General on Public Health matters.[1] I also develop DAF policy for force health protection, immunization recommendations and community health programs to ensure they are consistent with national medical standards and guidelines, improve the health of Airmen and Guardians, and enhance the mission.

[1] The Department of the Air Force includes the U.S. Air Force (including the Air National Guard and the Air Force Reserve) and the U.S. Space Force.

2. I make this declaration in my official capacity as the Chief of Public Health and based upon my personal knowledge and upon information that has been provided to me in the course of my official duties.

3. The Air Force depends on healthy personnel to complete its mission to "fly, fight and win . . . airpower anytime, anywhere."[2] When service members become ill, are hospitalized, or die from an infectious disease, they are unable to fulfill their role in achieving the Air Force's mission. Just as important, an infected service member can spread disease to other service members, further undermining the Air Force's ability to accomplish its mission. Any treatment of infected service members impacts the Air Force's ability to meet the medical needs of other service members. The Air Force relies on its vaccine program to protect service members from potential health risks, including infectious disease threats.

4. The Air Force requires vaccination because vaccines are the most effective way of mitigating the risk of spreading infectious diseases to other members, both in non-deployed and deployed environments, and preventing service members from becoming ill and dying. Vaccination has been ranked among the top 10 "Great Public Health Achievements" since 1900[3,4] and has dramatically decreased the number of infectious diseases world-wide over the last century. The main causes of death in the early 1900s were infectious diseases.[5] However,

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[2] U.S. Air Force, *Air Force unveils new mission statement* (Apr. 8, 2021), https://www.af.mil/News/Article-Display/Article/2565837/air-force-unveils-new-mission-statement/. "Airmen work to support all aspects of airpower, which includes five core missions: air superiority; global strike; rapid global mobility; intelligence, surveillance and reconnaissance; and command and control."

[3] Centers for Disease Control and Prevention (CDC), *Ten Great Public Health Achievements – United States, 1900 – 1999*, Morbidity and Mortality Weekly Report (MMWR), Vol. 48 (12), pages 241–243 (Apr. 2, 1999), *available at* https://www.cdc.gov/mmwr/pdf/wk/mm4812.pdf;

[4] CDC, *Ten Great Public Health Achievements – United States, 2001 – 2010*, Morbidity and Mortality Weekly Report, (MMWR), Vol. 60 (19), pages 619–623 (May 20, 2011), *available at* https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6019a5.htm.

[5] CDC, *Achievements in Public Health, 1900-1999: Control of Infectious Diseases*, MMWR, Vol. 48(29), pages 621-629 (July 30, 1999), *available at* https://www.cdc.gov/mmwr/preview/mmwrhtml/mm4829a1.htm.

since the introduction of vaccines, many previously deadly diseases are rarely seen today. Cases of measles and polio, for example, have been dramatically reduced by 80–99%.[6,7] But these diseases have not been entirely eradicated, so continued vaccination is necessary. For example, 159 cases of measles were reported in the United States over an eight month period in 2013, and 11% of those cases required hospitalization. The majority of those cases (82%) were unvaccinated individuals.[8] Vaccines are therefore crucial to keeping diseases at bay. As the number of unvaccinated people increases, the risk of resurgence of such diseases and their associated morbidity and mortality, increases.

5. Vaccines prevent infectious disease and have long been a cornerstone of military strategy. Disease and non-battle injury have historically been a greater threat to military personnel than battle injuries. There are numerous examples where the use of vaccines has enhanced the U.S. military mission by drastically curtailing morbidity and mortality among U.S. military personnel.[9, 10] "Influenza vaccine development was a high priority for the U.S. military after the deaths of approximately 1 in every 67 soldiers from influenza during the 1918-1919 pandemic."[11] The first influenza vaccine was first adopted for use by the Army in 1943, but out of fear for a winter outbreak of influenza, the Army directed influenza vaccination for all Army personnel on September 3, 1945.[12] Today, all active duty and reserve component personnel are

[6] World Health Organization (WHO), *10 Facts on Polio Eradication* (Apr. 1, 2017), https://www.who.int/news-room/photo-story/photo-story-detail/10-facts-on-polio-eradication.
[7] Centers for Disease Control and Prevention (CDC), *Measles Data and Statistics* (Apr. 16, 2019), https://www.cdc.gov/measles/downloads/measlesdataandstatsslideset.pdf.
[8] CDC, *Measles – United States, January 1 - August 24, 2013*, MMWR, Vol. 62(36), pages 741-43 (Sept. 13, 2013), https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6236a2.htm.
[9] Gaberstein J, Pittman P, Greenwood J, Engler R, Immunization to Protect the US Armed Forces: Heritage, Current Practice and Prospects. *Epidemiologic Reviews*, Vol 28, 2006, pgs. 3-26.
[10] Lemon S, Thaul S, Fisseha S, O'Maonaigh H, editors, Protecting Our Forces: Improving Vaccine Acquisition and Availability in the US Military, National Academies Press, 2002.
[11] College of Physicians of Philadelphia; The History of Vaccines: Influenza, https://www.historyofvaccines.org/content/articles/influenza; last updated 25 Jan 2018.
[12] War Department Circular No. 267, Influenza – Vaccination of Army Personnel, 5 September 1945.

required to receive the annual seasonal influenza immunization or obtain an exemption. AFI 48-110, ¶ 4–7(a).

6. Vaccines are vital to ensuring the health and safety of the force, maintaining mission readiness, and essential to protecting the individual from infectious diseases and preventing transmission to other military members with whom he or she interacts. This is even more important for those military duties and positions that require interacting with others in close quarters on a regular basis.

7. Vaccinations are also important in providing protection for Service members who are unable to receive one or more vaccines due to medical issues. Those issues can be temporary (e.g., during pregnancy) or permanent (e.g., allergic or severe adverse reaction to ingredients in a vaccine).[13] Medical exemptions are provided in those situations. Maximizing vaccinations within the Air Force for those medically able helps protect those that cannot otherwise receive the vaccine. The greater the number of required medical exemptions, the more important maximizing vaccinations becomes.

8. Second Lieutenant (2d Lt) Michael Poffenbarger's request for a religious accommodation to be exempt from the COVID-19 vaccine is based on his stated opposition to the use of aborted fetal cells in the "design, production, [or] testing phases"[14] of vaccine development. He also states that he opposes the use of mRNA vaccines (i.e., the Pfizer-BioNTech and Moderna COVID-19 vaccines) because they use "the recipient's cells to manufacture the S1 spike protein"[15] and the Johnson & Johnson/Janssen vaccine because it uses "a viral vector instead of

[13] The Department of the Air Force only granted temporary medical exemptions from the COVID-19 vaccine. This allows individuals who have a temporary medical condition (e.g., pregnancy) to get vaccinated after that temporary condition has resolved. This also allows the Air Force to reassess individuals with allergies or severe adverse reactions to determine whether a vaccine has been approved which constitutes the member can safely take.
[14] 2d Lt Poffenbarger memorandum, *Appeal of Religious Accommodation Request Denial*, dated October 30, 2021.
[15] Id.

mRNA to enter the recipient's body to produce the protein spike."[16] He states that he believes "using these technologies to force our bodies to manufacture this pathogenic protein is not a part of God's plan for our bodies."[17] The nature of his objections potentially would exclude the use of many vaccines in the future.

9. Other proposed means of accommodating 2d Lt Poffenbarger's request for an exemption from the COVID-19 vaccine would not be as effective and would hinder the Air Force mission. Evaluating his request entails evaluating whether practices, other than immunizations, to reduce the member's risk of infectious diseases and transmission can meet an equivalent level as if he were fully immunized. Unfortunately, short of fully isolating the member in a role that prevents contact with others – which is not practicable – I am not aware of any way to reduce the risks of contracting, transmitting, and physically combatting COVID-19 to the same level as if he were fully immunized.

10. Vaccinated members clear the virus faster and therefore are contagious for fewer days than those unvaccinated.[18,19,20] Transmission of COVID-19 can occur in vaccinated individuals,[21] but vaccinated individuals are much less likely to develop severe disease, be

[16] Id.
[17] Id.
[18] Singanayagam, A., et al., "Community transmission and viral load kinetics of the SARS-CoV-2 delta (B. 1.617. 2) variant in vaccinated and unvaccinated individuals in the UK: a prospective, longitudinal, cohort study," *The Lancet Infectious Diseases* (2021).
[19] Chia, PY., et al., "Virological and serological kinetics of SARS-CoV-2 delta variant vaccine-breakthrough infections: a multi-center cohort study," *medRxiv* 2021 (July 31,2021), https://doi.org/10.1101/2021.07.28.21261295 (preprint).
[20] Kissler, SM., et al., "Viral Dynamics of SARS-CoV-2 Variants in Vaccinated and Unvaccinated Individuals," *medRxiv* 2021 (Aug. 25, 2021), https://doi.org/10.1101/2021.02.16.21251535.
[21] One study found that the infection rate among vaccinated people from a family member or roommate infected with the Delta variant was 25% with prolonged, close contacts. *See* Singanayagam, Anika, et al., "Community transmission and viral load kinetics of the SARS-CoV-2 delta (B. 1.617. 2) variant in vaccinated and unvaccinated individuals in the UK: a prospective, longitudinal, cohort study," *The Lancet Infectious Diseases* (2021).

hospitalized, or die.[22,23] With the Delta variant (which was the primary variant in the United States when 2d Lieutenant Poffenbarger's request was denied), fully-vaccinated individuals had a 5-fold decreased risk of infection, a 13-fold decreased risk of hospitalization, and a 14-fold decreased risk of death compared to unvaccinated individuals.[24] Early studies from South Africa of vaccine effectiveness against the Omicron variant indicated the Pfizer vaccine was effective, although at a reduced level, against hospital admissions for COVID-19.[25] Similarly, the United Kingdom Security Agency published a recent technical report, indicating reduced efficacy against symptomatic disease from the Omicron variant after 2 doses of Pfizer or Moderna COVID-19 vaccines; however, vaccine efficacy increased to levels comparable to the Delta variant effectiveness after a third or booster dose.[26] Protection against hospitalization is much greater, in particular after a booster dose. In summary, a fully vaccinated service member is less likely to contract COVID-19 than an unvaccinated Service member and, if infected, is more likely to recover quicker and get back to the fight, minimizing the impact to mission accomplishment.

11. I have reviewed the declaration of Colonel Tonya Rans, dated January 31, 2022, regarding the effectiveness of the COVID-19 vaccine. My understanding of the effectiveness of the COVID-19 vaccine comports with the information in Colonel Rans's declaration.

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[22] CDC, *The Possibility of COVID-19 After Vaccination: Breakthrough Infections* (Nov. 9, 2021), https://www.cdc.gov/coronavirus/2019-ncov/vaccines/effectiveness/why-measure-effectiveness/breakthrough-cases.html

[23] Tenforde, Mark W., et al., "Association Between mRNA Vaccination and COVID-19 Hospitalization and Disease Severity," *JAMA* (2021).

[24] Two websites, https://covid.cdc.gov/covid-data-tracker/#rates-by-vaccine-status and https://covid.cdc.gov/covid-data-tracker/#covidnet-hospitalizations-vaccination, provide updated data regarding the effectiveness of vaccination against a) testing positive, b) being hospitalized, and c) dying from COVID-19. The data analyzed is from April through November 2021 and thus addresses vaccine efficacy during the Fall 2021 Delta variant wave.

[25] Collie, S, et al, Effectiveness of BNT162b2 Vaccine against Omicron Variant in South Africa, New England Journal of Medicine, DOI: 10.1056/NEJMc2119270; 29 Dec 2021.

[26] United Kingdom Health Security Agency, (UKHSA) SARS-CoV-2 variants of concern and variants under investigation in England, Technical briefing 34, pages 1-36, Publishing Reference: GOV-10924 (14 Jan 2022).

Masks

12. Masking is a critical public health measure for preventing the spread of respiratory diseases, like COVID-19. However, while wearing a mask may decrease transmission of some diseases, such as COVID-19, masking is not as effective as vaccination. The effectiveness of face masks depends upon the behavior of the wearer. Face masks are less effective if they are not tight fitting, not double layered, worn only around the mouth, taken off frequently, and adjusted frequently increasing hand/finger contact with one's face.

13. Cloth face coverings and surgical masks provide source control (reduction of virus shed by someone infected) and personal protection (filtering out of virus for the mask wearer) against small inhalable infectious particles. The Centers of Disease Control and Prevention (CDC) recently updated mask guidance by (a) clarifying that people can choose respirators such as N95s and KN95s, (b) removing concerns related to supply shortages for N95s, (c) clarifying that the "surgical N95s" are reserved for healthcare settings, and (d) some types of masks and respirators provide more protection than others.[27] Regarding types of masks to use, the CDC explained that N95 and KN95 masks work better than cloth masks which are better than no masks. They acknowledged human behavior limits the effectiveness of masks when they are not worn consistently and correctly and recommended wearing a mask with the best fit, protection, and comfort for the individual. As source control, consistent and correct wear of multiple-layered cloth masks filter out 50–70% of viral particles and limit the distance of spread for the remaining virus. For the wearer, consistent and correct wear of a multiple-layered cloth mask can filter out up to 50% of viral particles. When near others, many people do not constantly wear their mask and when wearing it, many do not wear a clean (or new) mask daily with a snug fit (no gaps)

[27] CDC, Types of Masks and Respirators, https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/types-of-masks.html.

over the mouth and nose. Even when worn consistently and correctly, extended durations in close contact with an infectious person can still lead to transmission. Data suggest that consistent, correct mask wear decreases COVID-19 incidence by 10–79%,[28] but typical use in the general population is not nearly this effective. Mask mandates decrease transmission by 2–29% and mortality by 45.7%.[29]

14. If two individuals in an indoor environment are wearing a typical cloth mask, the receiver's time to an infectious dose increases by minutes. If both people are wearing a surgical mask, the time to receive an infectious dose increases to an hour. If both people are wearing a non-fit-tested N-95, the time to an infectious dose increases to over 6 hours.[30] The protection provided, however, varies based on human behavior – type of mask worn, how the mask is worn, in what settings it is worn, etc. Accordingly, mask wear is a supplement to, but not an effective substitute for, vaccination.

15. Additionally, masks are limited to controlling the spread of the virus. Masks provide no protection to a service member who is infected with COVID-19. Unlike vaccination, a mask does not decrease the risk of serious illness, complications (e.g., hospitalization, long COVID), or death, and does not shorten recovery time.

Temperature Checks & Testing

16. Checking a service member's temperature alone to screen for COVID-19 is not an adequate screening tool for several reasons. Temperature checks only identify if a service

[28] CDC, *Science Brief: Community Use of Masks to Control the Spread of SARS-CoV-2* (Dec. 6, 2021), https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/masking-science-sars-cov2.html.
[29] Talic S, et al., Effectiveness of Public Health Measures in Reducing the Incidence of COVID-19, SARS-CoV Transmission, and COVID-19 Mortality: Systematic Review and Meta-Analysis. *British Medical Journal* 2021; 375: e068302. https://www.bmj.com/content/375/bmj-2021-068302
[30] Brosseau, LM., et al., *Commentary: What Can Masks Do? Part 1: The Science Behind COVID-19 Protection* (Oct. 14, 2021), https://www.cidrap.umn.edu/news-perspective/2021/10/commentary-what-can-masks-do-part-1-science-behind-covid-19-protection.

member has a fever; they do not identify if a member is infected with SARS-CoV-2. A fever is a symptom of many illnesses or conditions, including influenza, common cold, injury, side effect from medication, or over-exertion. Additionally, an individual infected with COVID-19 may be asymptomatic or not have fever as one of their symptoms. Finally, non-contact thermometers and thermal cameras may not provide an accurate reading of the individual's core body temperature, have not been accurate when evaluating multiple people over time, or have mixed results when used to reduce the spread of disease at points of entry to countries.[31, 32]

17. Two primary tests are used to detect infection with SARS-CoV-2: PCR tests and antigen tests. Each test detects different parts of the virus in different ways and vary by cost, resources required, and speed or turn-around-time of the results. PCR tests are highly sensitive and accurate. However, they are expensive, may take an hour or more from start to finish and must be accomplished by skilled lab technicians in a certified lab. Antigen tests, on the other hand, do not require special skills to complete them, are less expensive and provide results in a quarter of the time required for a PCR test. However, antigen tests may provide less accurate results if not done properly or if the person is in the early stages of COVID-19 and asymptomatic with a small amount of virus in their body.

18. Antigen tests have a 52.5% chance in those asymptomatic and a 76.7% chance in those symptomatic to identify individuals with COVID-19.[33] With twice weekly testing, the

[31] Nuertey, BD, et al*, Performance of COVID-19 associated symptoms and temperature checking as a screening tool for SARS-CoV-2 infection,* PLOS One, (Sep 17, 2021) https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0257450

[32] US Food and Drug Administration, Thermal Imaging Systems (Infrared Thermographic Systems / Thermal Imaging Cameras), (updated 12 Jan 2021) https://www.fda.gov/medical-devices/general-hospital-devices-and-supplies/thermal-imaging-systems-infrared-thermographic-systems-thermal-imaging-cameras

[33] Brummer LE., et al., (2021) Accuracy of Novel Antigen Rapid Diagnostics for SARS-CoV-2: A Living Systematic Review and Meta-Analysis. *PLOS Medicine* 18(8): e1003735. https://doi.org/10.1371/journal.pmed.1003735

sensitivity increased to 76.3% without regard to symptoms, to 83.8% within the first week of symptoms, and 95.8% for those with a high viral load.[34] As most Service members who are using the antigen test for workplace entry or travel will likely be asymptomatic for the required weekly testing (symptomatic service members are more likely to get tested in a medical setting at the onset of symptoms with a PCR test), the chance to identify a member that is actually infected is a little better than 50% with a single antigen test.[35]

19. Most instructions for antigen tests direct at least twice a week, serial testing followed by confirmatory testing (PCR test) in case of a positive antigen test. Research indicates testing with an antigen test at least every three days increases the probability of detecting a true positive to a level closer to a weekly PCR test (98.7% accuracy), but detection may not be prior to infectivity. For example, serial antigen testing at least every three days detected true positives with a 95.9% accuracy within a 14-day period from infection. The rate of antigen test detection prior to the first day of infectivity is 37.5%. On the day of peak infectivity viral detection is only 90%.[36]

20. Overall, serial antigen testing of asymptomatic members will detect most infections, but the member will likely be infectious prior to the test becoming positive. Serial testing will curtail the exposure in the unit after the infection is detected, but this is not as effective as preventing the original infection.

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[34] More frequent antigen testing increases the chance of detecting the optimal amount of virus at the earliest possible moment. For example, if an individual is infected on Sunday, takes an antigen test on Monday, but has an optimal amount of viral antigen on Wednesday, Monday's test will likely be a false negative.

[35] Brummer LE., et al., Accuracy of Novel Antigen Rapid Diagnostics for SARS-CoV-2: A Living Systematic Review and Meta-Analysis. *PLOS Medicine* 18(8): e1003735 (2021); https://doi.org/10.1371/journal.pmed.1003735.

[36] Smith, Rebecca L., et al., "Longitudinal assessment of diagnostic test performance over the course of acute SARS-CoV-2 infection," *medRxiv* (2021).

21. Additionally, testing can only identify the virus and does not prevent the Service member from becoming infected in the first place. Likewise, temperature checks identify only if a member has a fever and do not prevent a member from becoming infected. As with masking, testing and temperature checks provide no protection for an individual who is already infected and do not reduce the risk of illness, complications (e.g., long COVID, hospitalization), or death. Nor do temperature checks and testing reduce the length of recovery time after infection.

"Natural Immunity"

22. Contrary to 2d Lt Poffenbarger's assertion, there is no "recognized, long standing, natural immunity" against COVID-19. While evidence of prior infection is considered adequate documentation for some vaccine requirements such as measles, mumps, rubella, varicella (chickenpox), and hepatitis B virus, there are other vaccine-preventable pathogens where previous infection does not induce life-long sterilizing immunity, and prior infection is not considered an acceptable medical exemption (e.g., influenza, adenovirus).[37]

23. Although COVID-19 disease does provide some degree of natural immunity to SARS-CoV-2 virus, the length and completeness of protection varies. Current evidence has not determined an antibody threshold indicative of protection from re-infection. Nor is there an FDA-authorized or FDA-approved test to assess this. Evidence is also inadequate to associate specific antibody levels with the degree of re-infection risk for an individual.[38] One to ten percent of people do not develop long-lasting (IgG-type) antibodies following confirmed COVID-19 infection (vs. 100% developing antibodies for the mRNA vaccines and 90% for

[37] Defense Health Agency Procedural Instruction, *Guidance for the DoD Influenza Vaccination Program* (Aug. 21, 2020).
[38] CDC, *Science Brief: SARS-CoV-2 Infection-Induced and Vaccine-Induced Immunity* (Oct. 29, 2021), https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/vaccine-induced-immunity.html.

Johnson & Johnson/Janssen).[39, 40] Antibody titers, a measurement of the amount of antibody in a person's blood, peak at 3 to 5 weeks after infection and then begin to wane. Neutralizing antibodies, or antibodies which eliminate a pathogen before an infection takes place, demonstrate approximately a 50% reduction within 2 to 3 months and become undetectable in up to 30% of people within 10 months post-infection.[41] Mild or asymptomatic COVID-19 infections tend to generate lower antibody levels than those with severe disease.[42] Overall, the duration of protection varies depending on disease severity, person's age, antibody assay utilized, and variants of the virus.[43] After infections with the original SARS-CoV-2 strain, detectable neutralizing antibodies were found in 84% of people for the Alpha variant, 68% for the Delta variant, and 55% for the Beta variant.[44]

24. Both natural and vaccine immunity decrease the risk of re-infection. Studies vary on their conclusions regarding whether the infection rate is equivalent, lower, or higher in those fully vaccinated compared to those previously infected. The varying conclusions show there is still a lot that is unknown about the strength, consistency, and duration of protection from prior SARS-CoV-2 infection. These studies are not conclusive and it is not prudent to rely on isolated studies as authoritative. In two studies, prior infection (without subsequent vaccination) was associated with 2.3 times the odds of reinfection and 5.49 times the rate of hospitalization with

[39] World Health Organization, *COVID-19 Natural Immunity: Scientific Brief* (2021), https://apps.who.int/iris/handle/10665/341241.
[40] CDC, *Science Brief: SARS-CoV-2 Infection-Induced and Vaccine-Induced Immunity* (Oct. 29, 2021), https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/vaccine-induced-immunity.html.
[41] CDC, *Science Brief: SARS-CoV-2 Infection-Induced and Vaccine-Induced Immunity* (Oct. 29, 2021), https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/vaccine-induced-immunity.html.
[42] Long, Q.X., Tang, X.J., Shi, Q.L., Li, Q., Deng, H.J., Yuan, J., Hu, J.L., Xu, W., Zhang, Y., Lv, F.J., et al., Clinical and immunological assessment of asymptomatic SARS-CoV-2 infections, *Nat. Med*. 26, 1200-1204, (2020).
[43] World Health Organization, *COVID-19 Natural Immunity: Scientific Brief* (2021), https://apps.who.int/iris/handle/10665/341241.
[44] CDC, *Science Brief: SARS-CoV-2 Infection-Induced and Vaccine-Induced Immunity* (Oct. 29, 2021), https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/vaccine-induced-immunity.html.

re-infection compared with being fully vaccinated.[45,46] In contrast, another study showed that at six months from vaccination or infection, the rate of breakthrough or re-infection was 13-fold higher for those vaccinated without prior infection than those with only prior infection,[47] indicating prior infection imparts some protection. Similarly, a recent study indicates during the Delta wave, both COVID-19 vaccination and surviving a prior infection provided protection against infection and hospitalization from COVID-19 as case rates and related hospitalizations increased at a lower rate among both vaccinated and unvaccinated persons with prior COVID-19 diagnosis. This study, however, did not include information on the severity of initial infection[48] and did not reflect the risk of morbidity and mortality from COVID-19 infection.[49] Both latter studies, while indicating prior infection imparts some protection, show the added benefit of vaccination for those previously infected. Vaccination provides a strong boost in protection for people who have recovered from COVID-19, resulting in a 1.85 to 2.34-fold decreased risk of re-

[45] Cavanaugh, A. M., Reduced Risk of Reinfection with SARS-CoV-2 After COVID-19 Vaccination—Kentucky, May–June 2021, *MMWR. Morbidity and Mortality Weekly Report*, 70(32) (Aug. 13, 2021), *available at* https://www.cdc.gov/mmwr/volumes/70/wr/mm7032e1.htm.

[46] Bozio CH., et al. Laboratory-Confirmed COVID-19 Among Adults Hospitalized with COVID-19-Like Illness with Infection-Induced or mRNA Vaccine-Induced SARS-CoV-2 Immunity—Nine States, January-September 2021, *MMWR. Morbidity and Mortality Weekly Report*, 70(44) (Nov. 5, 2021), *available at* https://www.cdc.gov/mmwr/volumes/70/wr/mm7044e1.htm.

[47] Gazit S., et al., Comparing SARS-CoV-2 Natural Immunity to Vaccine-Induced Immunity: Reinfections Versus Breakthrough Infections (Aug. 25, 2021), https://doi.org/10.1101/2021.08.24.21262415.

[48] Personnel with more severe infection have a larger antibody response. In a study of SARS-CoV-2 infected indiviuduals, a more severe disease indicated a larger memory B cell response to the SARS-CoV-2 spike protein. Guthmiller JJ, Stovicek O, Wang J, et al. SARS-*CoV-2 Infection Severity Is Linked to Superior Humoral Immunity against the Spike*. mBio. 2021;12(1):e02940-20. Published 2021 Jan 19. doi:10.1128/mBio.02940-20,

[49] León TM, Dorabawila V, Nelson L, et al., *COVID-19 Cases and Hospitalizations by COVID-19 Vaccination Status and Previous COVID-19 Diagnosis — California and New York, May–November 2021* MMWR Morb Mortal Wkly Rep. (Jan. 19, 2022), https://www.cdc.gov/mmwr/volumes/71/wr/mm7104e1.htm?s_cid=mm7104e1_w.

infection.[50,51,52] Overall, boosting the immune system with a vaccine after infection or initial vaccine series is effective for decreasing the risk of subsequent infection.

Isolation & Social Distancing

25. Effectiveness of social distancing depends on the specific activity being conducted (e.g., sitting quietly vs. yelling orders or speaking loudly in a classroom setting vs. constant intermingling during a social event, such as a holiday party). A systematic review of physical distancing of at least three feet to prevent SARS-CoV-2 transmission demonstrated a 25% reduction in transmission.[53] Although infections through inhalation at distances greater than three to six feet from an infectious source are less likely than at closer distances, infections even at these distances have been repeatedly documented under certain preventable circumstances.[54,55,56] These transmission events have involved the presence of an infectious person exhaling virus indoors for an extended time (more than 15 minutes and in some cases hours) leading to virus concentrations in the air space sufficient to transmit infections to people more than six feet away, and in some cases to people who have passed through that space soon after the infectious person left.

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[50] Cavanaugh, A. M., Reduced Risk of Reinfection with SARS-CoV-2 After COVID-19 Vaccination—Kentucky, May–June 2021. *MMWR. Morbidity and Mortality Weekly Report*, *70*(32) (Aug. 13, 2021), *available at* https://www.cdc.gov/mmwr/volumes/70/wr/mm7032e1.htm.

[51] Stamatatos L., et al., mRNA Vaccination Boosts Cross-Variant Neutralizing Antibodies Elicited by SARS-CoV-2 Infection, *Science* 372 (6549): at 1413–1418 (Mar. 25, 2021), https://doi.org/10.1126/science.abg9175.

[52] Gazit S., et al., Comparing SARS-CoV-2 Natural Immunity to Vaccine-Induced Immunity: Reinfections Versus Breakthrough Infections (Aug. 25, 2021), https://doi.org/10.1101/2021.08.24.21262415.

[53] Talic S, et al. Effectiveness of Public Health Measures in Reducing the Incidence of COVID-19, SARS-CoV Transmission, and COVID-19 Mortality: Systematic Review and Meta-Analysis. *British Medical Journal* 2021; 375: e068302. https://www.bmj.com/content/375/bmj-2021-068302.

[54] Lendacki F, et al., COVID-19 Outbreak Among Attendees of an Exercise Facility — Chicago, Illinois, August–September 2020. MMWR, 70(9):321-325 (Mar. 5, 2021), https://pubmed.ncbi.nlm.nih.gov/33661859/.

[55] Katelaris AL, et al., Epidemiologic Evidence for Airborne Transmission of SARS-CoV-2 during Church Singing, Australia, 2020. Emerg Infect Dis. 27(6) (June 6, 2021), https://doi:10.3201/eid2706.210465.

[56] Hamner L, Dubbel P, Capron I, et al. High SARS-CoV-2 Attack Rate Following Exposure at a Choir Practice – Skagit County, Washington, March 2020. MMWR 69(19): 606-610 (May 15, 2020), https://www.cdc.gov/mmwr/volumes/69/wr/mm6919e6.htm.

26. United States data shows isolation/lock-downs have been associated with a 4.9% to 14-fold decrease in transmission.[57] But even if an individual works in an isolated environment by full-time teleworking, that individual still interacts with others in the local community and their household. Thus, working in an isolated environment removes risk from viral transmission to others at work, but it does not eliminate risk of infection and disease complications to the individual to include long-COVID symptoms, hospitalizations, ICU admissions, and deaths.

27. Additionally, isolation is not practicable in this case. 2d Lt Poffenbarger is an (as yet untrained) intelligence officer, where telework or remote work are not feasible. Because he would have to access classified materials and systems, his duties would require him to be trained and then to work in a secured location, which is shared with other Service members and personnel. At his workspace, his desk is a cubicle that is in close proximity to others. While plexiglass barriers are almost ubiquitous in customer service settings for the short interaction between a customer and cashier or bank teller, physical barriers formed by cubicle walls or bookshelves are not as effective in a workplace with multiple people. In a work setting, with a single point of air supply and a single point of extract, the barriers promote the formation of air re-circulation zones, which in turn promote the accumulation of contaminates.[58]

Herd Immunity

28. Herd immunity is not as effective in preventing and controlling the spread of a virus as being vaccinated. Herd immunity occurs when a large portion of the community becomes immune to a disease, thus reducing the spread and impact of the disease. Early in 2020, as the

[57] Talic S, et al. Effectiveness of Public Health Measures in Reducing the Incidence of COVID-19, SARS-CoV Transmission, and COVID-19 Mortality: Systematic Review and Meta-Analysis. *British Medical Journal* 2021; 375: e068302. https://doi.org/10.1136/bmj-2021-068302.

[58] Khankari, Kishor, Analysis of Spread of Airborne Contaminants and Risk of Infection, American Society of Heating, Refrigerating and Air Conditioning Engineers Journal, pgs 15-20, July 2021.

COVID-19 vaccine was being developed, many estimated a vaccine rate of 60-70% would impart herd immunity upon the population and thus end the pandemic. However, there are many reason why this has proven to be a faulty assumption.[59] First, vaccine roll-out and vaccine acceptance rates vary among populations in the community. The vaccination rate among the military cannot be viewed in isolation for determining "herd immunity." For example, while 97% of Active Duty Service members and 92% of Reservists in the Department of the Air Force are fully vaccinated, the vaccination rate for the U.S. population is 75.5%.[60, 61] Considering only one subset of the population (e.g., the U.S. military or Department of the Air Force) to determine herd immunity would be erroneous, since these populations intermingle with other less-vaccinated populations, thus increasing the risk the disease will continue to spread and virus will continue to mutate. The community vaccination rate also varies based on region. For example, as of January 21, 2022, Greene County and Montgomery County, Ohio (where Wright-Patterson Air Force Base is located) have COVID-19 vaccination rates of 58.1% and 58.4% respectively.[62] These vaccination rates may be even lower among small cohorts of people in the community. Thus, while the military may have a higher rate of vaccination, communities and social groups with which military service members associate, may not have as high of a vaccination rate, thus presenting a greater risk of disease. Indeed, 2d Lt Poffenbarger is a Traditional Reservist, meaning that he does not work full-time at Wright-Patterson Air Force Base, and may spend more time than active duty Service members intermingling with the surrounding community.

[59] Aschwanden, Christine, Five Reasons why COVID Herd Immunity is Probably Impossible, Nature Vol. 591 (Mar. 25, 2021).
[60] Official site for the AF's Aeromedical Services Information Management System (ASIMS) Reports, Data current as of Jan. 21, 2022; https://asimsimr.health.mil/main/main.aspx
[61] CDC COVID Data Tracker (data current as of Jan. 24, 2022), https://covid.cdc.gov/covid-data-tracker/#vaccinations_vacc-total-admin-rate-total.
[62] State of Ohio Department of Health COVID-19 Vaccine Dashboard (data current as of Jan. 21, 2022), https://coronavirus.ohio.gov/wps/portal/gov/covid-19/dashboards/covid-19-vaccine/covid-19-vaccination-dashboard.

29. Second, the COVID-19 disease continues to mutate, which degrades the overall effectiveness of herd immunity. The Delta and Omicron variants developed in populations which had low rates of vaccination – India for the Delta variant and South Africa for the Omicron variant. Within months, both variants spread throughout the world causing increases in cases, hospitalizations, and deaths. Herd immunity does not necessarily provide protection against these variants. For example, although Israel and the United Kingdom have higher vaccine rates than the United States and likely decreased the rate of hospitalization and death for the vaccinated, herd immunity was insufficient to protect them from increases in COVID-19 cases.[63]

30. The impact of mutations is demonstrated with seasonal influenza, where a new vaccine is required each year to protect against the changing influenza virus. The current COVID-19 vaccines, developed for the Alpha variant, provide better protection than being unvaccinated, but are slightly less effective for the Delta variant, and less effective for the Omicron variant. As the viruses mutate, any herd immunity gained may be lost with subsequent mutations. Persistent mutations, or viral changes which increase the viruses chance of surviving and being transmitted to others, have a greater risk of developing in an unvaccinated, unprotected population. The lower the rate of vaccination, the greater the chance of infection and subsequent mutations.

31. Additionally, although the original belief was that 60%-70% vaccination rate would help end the pandemic, the Air Force's vaccine program is not meant to prevent a pandemic. Instead, as previously noted, the Air Force relies on the Department of Defense vaccine program (and medical readiness program as a whole) to protect Service members from potential health risks to

[63] COVID-19 case, vaccination, hospitalization and death rate data for this statement taken from (a) Johns Hopkins University, Center for Systems Science and Engineering (CSSE) as used by Google search engine (i.e., www.google.com, search terms "Israel COVID case graph") (last accessed Jan. 27, 2022) and (b) Our World Data In Data (https://ourworldindata.org/coronavirus).

ensure a healthy fighting force and mission readiness. Military medical readiness requirements aim to mitigate risk. The Department of Defense requires vaccination for many diseases unrelated to the COVID-19 pandemic, including, for example, influenza, measles, and diphtheria. These requirements include vaccination from diseases that are not contagious through human-to-human transmission, such as tetanus. This is similar to the requirement for Service members to undergo annual dental examinations and meet specific dental requirements (e.g., root canals) in order to be considered medically ready. The need for a root canal could result in a medical evacuation from a deployed environment. As such, the Department of Defense has determined that these requirements are the best method of ensuring mission accomplishment because the vaccine program maximizes the number of Service members vaccinated for each immunization requirement in order to minimize the risk to the individual Service member and to the force of illness, hospitalization, transmission, and adversely impacting the mission of the United States military to protect and defend the nation.

32. Finally, while herd immunity may eventually reduce some of the risk to unvaccinated Service members, it would not be as effective as the member being vaccinated. An unvaccinated individual increases risk of disease to themselves, their colleagues, their family and community. Increased risk of disease in any of these groups may impact the mission by either eliminating the service member, depleting medical resources, or distracting the service member from focusing their work.

Sanitization

33. Improved sanitation also cannot replace vaccination. Many vaccine-preventable diseases are spread through fomites. Fomites are objects or surfaces that, when exposed to infectious agents from bodily secretions (e.g., nasal fluid from sneezing or wiping nose, oral secretions

from coughing) can transmit to others who contact the objects or surfaces. Disease transmission is greatly reduced when surfaces which people touch are clean and when clean water and soap are available to wash hands and surfaces. However, such mitigation efforts must be continuous and do not counter the principle mode of SARS-CoV-2 transmission, exposure to respiratory droplets carrying infectious virus.[64] When individuals work in close proximity and handle the same materials (e.g., documents, desk space, consoles, equipment, door knobs), it is difficult to keep those materials and areas constantly disinfected.

34. Handwashing also is not enough to replace the effectiveness of vaccines. Germs can spread from other people or surfaces when you: (a) touch your eyes, nose, and mouth with unwashed hands, (b) prepare or eat food and drinks with unwashed hands, (c) touch a contaminated surface or objects, or (d) blow your nose, cough, or sneeze into hands and then touch other people's hands or common objects. Washing hands for 20 seconds, with soap and clean water, is one, very important step for preventing the spread of germs, but is less effective for diseases primarily transmitted via airborne transmission. Handwashing is especially important for people before eating or preparing food, before touching your face, after using the restroom, after leaving a public place, after blowing your nose, coughing, or sneezing, after handling your mask, after changing a diaper, after caring for someone who is sick, and after touching animals or pets.[65]

35. Unlike vaccination, hand washing would not provide continuous protection. To effectively reduce disease, hand washing and sanitation regiments must be rigorously and

[64] CDC, *SARS-CoV-2 and Surface (Fomite) Transmission for Indoor Community Environments*, updated Apr. 5, 2021, https://www.cdc.gov/coronavirus/2019-ncov/more/science-and-research/surface-transmission.html.
[65] CDC, *When and How to Wash Your Hands* (Aug. 10, 2021), https://www.cdc.gov/handwashing/when-how-handwashing.html.

systematically followed. Individuals frequently touch their face, handle their masks, and can unknowingly touch contaminated objects or surfaces. It is not realistic for the Air Force to put in a system that ensures a member washes their hands for at least 20 seconds any time they touch their face (including when they sneeze or cough) or sanitizes any shared surface after any team member touches it. Finally, even if strict sanitation and hand-washing regiments can eliminate fomites, several studies among animals, in labs, and in human populations prove the primary mode of transmission for SARS-CoV-2 is airborne transmission.[66, 67, 68]

36. Typical air filtration systems are also ineffective in preventing the spread of illness. While some research has found SARS-CoV-2 virus in a building's heating, ventilation and air conditioning (HVAC) system,[69] the HVAC systems in most non-medical buildings play only a small role in reducing infectious disease transmission. Because neither the training facility where 2d Lt Poffenbarger would attend intelligence technical school nor the vault where 2d Lt Poffenbarger would be assigned to work are medical buildings, it is unlikely the HVAC systems would provide sufficient protection to eliminate or even greatly reduce COVID-19 transmission in the training facility or his work area.

SARS-CoV-2 Is Not Comparable to Human Immunodeficiency Virus (HIV) Infection

37. I understand that 2d Lt Poffenbarger has argued that vaccination against COVID-19 is not the least restrictive means of achieving the Air Force's interests because "Defendants

[66] J Port et al. SARS-CoV-2 disease severity and transmission efficiency is increased for airborne compared to fomite exposure in Syrian hamsters. Nature Communications DOI: 10.1038/s41467-021-25156-8 (2021).
[67] Wang, CC, Prather, KA, et al, Airborne transmission of respiratory viruses, SCIENCE, Vol 373, Issue 6558 DOI: 10.1126/science.abd9149 (Aug. 27, 2021) *available at* https://www.science.org/doi/10.1126/science.abd9149
[68] National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases, Science Brief: SARS-CoV-2 and Surface (Fomite) Transmission for Indoor Community Environments, updated Apr. 5, 2021, *available at* https://www.cdc.gov/coronavirus/2019-ncov/more/science-and-research/surface-transmission.html.
[69] Lednicky, JA, et al., Viable SARS-CoV-2 in the air of a hospital room with COVID-19 patients, *International Journal of Infectious Disease*, Vol. 100, pages 476–482 (Nov. 2020), *available at* https://www.ijidonline.com/article/S1201-9712(20)30739-6/fulltext.

accommodate HIV positive soldiers, demonstrating that the existence of a disease, even a lethal or transmittable disease, does not require the discharge of soldiers."[70] The Air Force has different policies concerning Service members with HIV. Any comparison between the viruses is not appropriate as SARS-CoV-2 and HIV are transmitted in totally different ways. SARS-CoV-2 is transmitted via infected respiratory droplets from a COVID-19 positive person to another person, in essence from exhaling, sneezing, coughing, singing, shouting, etc. HIV is a blood-borne pathogen and exposure takes place when an HIV positive person's blood or body fluid (e.g., semen, vaginal fluid, breast milk) comes in direct contact with another individual's mucosal membranes found in the eyes, ears, nose, mouth, anus, penis, or vagina. HIV also does not survive long outside the body and is not transmitted via the air or by touching.[71]

Conclusion

38. In sum, none of the measures discussed above are as effective as being fully vaccinated against COVID-19, and relying on them instead of vaccines would hinder the Air Force's mission accomplishment. 2d Lt Poffenbarger is required to work in a secured location and in coordination with other members. No alternative would reduce 2d Lt Poffenbarger's risk of morbidity and mortality associated with COVID-19, to himself and others, as effectively as him being vaccinated.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct. Executed this 31st day of January 2022.

POEL.JAMES.R.1181237550 Digitally signed by POEL.JAMES.R.1181237550 Date: 2022.01.31 13:17:51 -05'00'

JAMES R. POEL, Col, USAF
Chief, Public Health Branch

[70] Pl.'s Mot. for an Emergency Temporary Restraining Order and Prelim. Inj. at 10, Doc. No. 2.
[71] CDC Division of HIV Prevention, National Center for HIV, Viral Hepatitis, STD, and TB Prevention, updated Apr. 21, 2021, https://www.cdc.gov/hiv/basics/hiv-transmission/not-transmitted.html.